WORK PLAN

FOR

FORMER ANGELES CHEMICAL COMPANY FACILITY 8915 SORENSEN AVENUE SANTA FE SPRINGS, CALIFORNIA

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APRIL 27, 2001

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1.0) INTRODUCTION

Blakely Environmental Investigations, Inc. (BEII) was contracted by Greve Financial Services, Inc. ((310) 753-5770) to prepare a work plan to delineate the northern extent of shallow impacted soil identified at the former Angeles Chemical Company facility located at 8915 Sorensen Avenue, Santa Fe Springs, California (See Figure 1, Site Location Map). The delineation was requested by the lead agency for this site, the Department of Toxic Substances Control (DTSC), in a meeting held on March 16, 2001.

2.0) SITE LOCATION AND HISTORY

The site is approximately 1.8 acres in size and completely fenced. The site was bound to Sorensen Avenue on the east, Liquid Air Corporation to the northwest, Plastall Metals Corporation to the north, and a Southern Pacific Railroad easement and McKesson Chemical Company to the south.

The Angeles Chemical Company has operated as a chemical repackaging facility since 1976. A total of thirty-four underground storage tanks (USTs) are presently at the site with one additional UST used as a containment for surface runoff or spillage. Chemicals which have been stored and used on site include, but are not limited to, acetone, methylene chloride, 1,1,1-trichloroethane (1,1,1-TCA), tetrachloroethene (PCE), methyl ethyl ketone (MEK), toluene, xylene, kerosene, diesel, and unleaded gasoline.

In January 1990, SCS conducted a site investigation. SCS advanced eight borings from 5' below grade (bg) to 50' bg. Soil samples collected and analyzed identified benzene, 1,1-Dichloroethane (1,1-DCA), 1,1-Dichloroethene (1,1-DCE), MEK, methyl isobutyl ketone (MIBK), toluene, 1,1,1-TCA, PCE, and xylenes at detectable concentrations.

In June 1990, SCS performed an additional site investigation at the site by advancing six additional borings advanced from 20.5' bg to 60' bg. A monitoring well (MW-1) was also installed. Soil sample analysis identified detectable concentrations of the above mentioned VOCs in addition to acetone and methylene chloride. Dissolved benzene, 1,1-DCA, 1,1-DCE, PCE, TCE, and trans-1,2-dichloroethene were detected in MW-1 above allowable levels.

Between 1993 and 1994, SCS performed further testing at the site. Soil samples were collected from nine borings. Five borings were converted to groundwater wells MW-2 through MW-6 (See Figure 2, SCS Well Location Map). The predominant compounds detected in soil were acetone, MEK, MIBK, PCE, toluene, 1,1,1-TCA, TCE, and xylenes. Groundwater sample collection and analysis identified the following using EPA method 624:

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Component Analyzed	MW-1	MW-2	MW-3	MW-4	MW-6	MW-7	
Benzene	194	<100	63	111	795	46_	
1,1-DCA	649	1,130	85	1,410	2,260	2,130	
1,2-DCA	<100	<100	<50	<100	1,140	31	
1,1-DCE	2,210	2,460	2,800	806	1,240	151	
Ethylbenzene	333	1,720	115	1,180	1,910	45	
Methylene Chloride	1,220	2,980	6,530	4,760	21,400	<50	
PCE	662	2,150	5,370	3,320	2,130	134	
Toluene	560	7,390	579	12,700	13,500	398	
1,1,1-TCA	9,370	3,470	444	36,200	114,000	90	
TCE	7,160	3,040	1,730	14,300	1,320	45	
Xylenes	1,750	7,790	1,014	4,362	4,710	186	
Units	μg/L	μg/L	μg/L	μg/L	μg/Ľ	μg/L	

In 1996, SCS performed separate soil vapor extraction pilot testing beneath the site at approximately 10' bg and 22' bg. Laboratory analysis identified maximum soil vapor gas concentrations as 1,1,1-TCA (30,300 ppmV) with detectable concentrations of 1,1-DCE, TCE, methylene chloride, toluene, PCE and xylenes. The maximum radius of influence from the various extraction units used were measured as 35 feet at 10' bg and 80 feet at 22' bg.

In November 1997, SCS performed a soil vapor survey at the site. Soil vapor samples were collected at twelve locations at 5' bg. In addition, soil vapor samples were collected at 15' bg in five of the twelve sampling points (See Figure 3 for SCS Soil Vapor Survey Points). The soil vapor survey identified maximum VOC contaminants near the railroad tracks on site, the location where a rail tanker reportedly had an accidental release.

In July 2000, BEII contracted BLC Surveying, Inc. to perform a site survey. Well locations were recorded using the California Plane coordinate systems. A copy of the survey is on file with the DTSC.

In September 2000, Blaine Tech Services, Inc. gauged the six on-site monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-6, and M\V-7). Free product (FP) was identified in monitoring well MW-4 at 0.21-feet in thickness. Approximately 0.5 liters of FP were removed from the well.

BEII performed a soil vapor gas survey at the site from November 27 to December 1, 2000. A total of 36 soil vapor sample points, labeled SV1 through SV36, were selected by BEII and the DTSC for analysis. Two discrete soil vapor samples were collected from each soil vapor sample point, one at 8' bg and one at 20' bg. SV1 was an exception since the first soil vapor sample was collected at 10' bg instead of 8' bg (See Figure 4, BEII Soil Vapor Sample Locations). Based on the soil vapor sample results, BEII identified relatively low level concentrations of VOCs in the silty clay soils at 8' bg. However, the concentrations of VOCs are

significantly higher in the sandy soils at 20' bg. See Table 1 for soil vapor sample results.

On November 30, 2000, Blaine Tech Services, Inc. (Blaine) was contracted to perform groundwater sampling at the site. Groundwater monitoring wells MW-4 and MW-6 identified free product and were not sampled. Groundwater sample analysis identified thirteen constituents of concern (COCs) in the dissolved phase as VOCs only. See **Table 2** for groundwater sample results. Laboratory analysis of metals and SVOCs identified concentrations below allowable levels for those constituents.

3.0) REGIONAL GEOLOGY/HYDROGEOLOGY

The site is located near the northern boundary of the Santa Fe Springs Plain within the Los Angeles Coastal Plain at an elevation of approximately 150 feet above mean sea level. Surficial sediments consist of fluvial deposits composed of inter-bedded gravel, sand, silt, and clay. Available data from California Water Resources Bulletin No. 104 (June 1961) indicate that the surficial sediments may be Holocene and/or part of the upper Pleistocene Lakewood Formation, which ranges from 40 to 50 feet thick beneath the site. The Lakewood Formation has lateral lithologic changes with discontinuous permeable zones that vary in particle size. Stratified deposits of sand, silty sand, silt, and fine gravel comprising the upper portion of the lower Pleistocene San Pedro Formation underlies the Lakewood Formation.

The site lies within the Central Basin Pressure area, a division of the Central Ground Water Basin, which extends over most of the Coastal Plain. The Gasper aquifer, a part of the basal coarse unit of Holocene deposits, is found within old channels of the San Gabriel and other rivers. The Gasper aquifer may be 40-feet in thickness, with its base at a depth of about 80 to 100-feet bg. The underlying Gage aquifer is found within the upper Pleistocene Lakewood Formation. The Hollydale aquifer is the uppermost regional aquifer in the San Pedro Formation. Bulletin 104 indicates that this aquifer averages approximately 30-feet in thickness in this area, with its top at a depth of about 70 feet bg. The major water producing aquifers in the region are the Lynwood aquifer located approximately 200-feet bg, the Silverado aquifer located at approximately 275-feet bg, and the Sunnyside aquifer located at approximately 600-feet bg.

4.0) SITE GEOLOGY/HYDROGEOLOGY

SCS identified silty clays with some minor amounts of silt and sand in the shallow subsurface from surface grade to approximately 15' bg. Below the silty clay, poorly sorted coarse-grained sand and gravel was identified from 15' bg to 26' bg. A less permeable silty clay layer was identified by SCS between 35' and 50' bg, which contains stringers of fine sand and silt that is part of the Gaspur/Hollydale aquifer. The sand layer between 15' bg and 26' bg slopes topographically from the McKesson site to the former Angeles Chemical site, as identified by McKesson, and is in contact with groundwater beneath both sites.

Two aquifers were identified by SCS during subsurface investigations performed at the site. A perched aquifer was encountered at approximately 23' bg and the Gaspur/Hollydale aquifer was encountered at 20' to 35' bg by SCS. In November 2000, the groundwater was identified between 26.20' bg to 36.42' bg beneath the site.

5.0) OFF-SITE CONTAMINATION CONTRIBUTORS

Between 1977 and 1998, the McKesson facility located south of the former Angeles Chemical facility received approximately ten citations from the USEPA (United States Environmental Protection Agency) and the County of Los Angeles regarding unauthorized surface releases on-site. Field reports from both agencies identified that McKesson was discharging chlorinated solvents, up to 15,000 gallons at a time for years, into an unlined drainage ditch located between the McKesson and former Angeles Chemical facilities. Harding Lawson Associates (HLA) identified that the drainage ditch was hydraulically connected to groundwater beneath the McKesson and the former Angeles Chemical facilities by permeable sands from 15' bg to 25' bg. HLA also identified that this permeable sand layer had a slope to the north, the direction of the former Angeles Chemical facility. Thus allowing chlorinated solvents to percolate into this sloped permeable sand layer hydraulically connected to groundwater beneath the former Angeles Chemical facility.

Furthermore, the McKesson facility stored chlorinated solvents on-site in twenty (20) USTs. In 1999, the USTs were removed from the McKesson facility. Field notes from the Santa Fe Springs Fire Department Inspector on-site identified severe pitting of the USTs.

6.0) SCOPE OF WORK

BEII proposes that a subsurface soil investigation be performed north of the site to confirm the lateral extent of VOC soil vapors in the shallow vadose zone. The proposed work is submitted to the DTSC, the lead regulatory agency overseeing the site, for approval prior to commencement. A direct push hydraulic rig supplied by an environmental licensed drill company will be used to advance up to 8 (eight) borings to 10' bg (See Figure 5, BEII Proposed Boring Locations). Soil samples will be collected at 5' bg and 10' bg for VOC analysis using EPA method 8260.

Soil samples will be collected with a 2-foot split spoon sampler lined with four 1-inch by 6-inch brass tubes. At each collection depth, the brass tube at the bottom of the sampler will be packaged with Teflon tape and capped for laboratory analysis. The brass tube directly above the bottom tube will be screened in the field using an H-Nu DL 101 photoionization detector (PID) and inspected for soil classification. Each boring will be backfilled with bentonite chips. Soil samples will be logged on the chain-of-custody forms immediately following sampling of each boring to insure proper tracking through analysis in the laboratory. The above work will be

performed under the direct supervision of a California Registered Civil Engineer.

In addition, BEII proposes to remove the existing ten (10) USTs that are not slurry filled. A UST closure application is currently being completed for submittal to the Santa Fe Springs Fire Department (SFSFD). A work plan for the removal of the USTs has already been submitted to the SFSFD for approval (on file with the DTSC). UST removal will commence within sixty days of the SFSFD approval to remove the USTs.

No delineation will be performed along the south side of the former Angeles Chemical Company facility until McKesson has completely delineated their discharge of VOCs.

6.1) Analytical Methods and Quality Assurance

Soil samples will be transported to Applied P & Ch Laboratories, a certified laboratory by the California EPA to perform the requested analysis. Samples will be analyzed on a normal turnaround basis under the QA/QC protocols presented in the Quality Assurance Project (on file with the DTSC).

6.2) Reporting

Soil sampling results will be submitted to DTSC within sixty days of work completion. The report will include the following information:

- Laboratory analytical results and chain-of-custody documentation.
- Tabulated analytical results including historical data.
- OA/OC assessment.
- Detailed description of any deviation from the work plan.
- Assessment of significant changes since the previous reporting period.
- Summary and recommendations, including a discussion of any outstanding issues.

The report will be signed by the registered civil engineer under whose supervision the investigation was conducted and by each member of the field team. The report will contain a table of contents and numbered pages.

6.3) Schedule

Initiation of the proposed work will commence within sixty days of the work plan approval by the DTSC. Upon completion of work, a report of summarizing the work, evaluating the quality of the analytical data, interpretation of the data and recommendations for additional work, if needed, to resolve any data gaps will be submitted to the DTSC for review within sixty

days. The report will be signed by a California Registered Civil Engineer that has overseen site activities.

7.0) FIELD DOCUMENTATION AND CHAIN-OF-CUSTODY

The following sections describe the recording system for documenting all site field activities and the sample Chain-of-Custody Program.

7.1) Field Log Book

An accurate chronological recording of all field activities is vital to the documentation of any environmental investigation. To accomplish this, bound and numbered field logbooks will be maintained by the field team to provide a daily record of significant events, observations, and deviations from the work plan and measurements collected during the field activities. The records will contain sufficient information so that the work activities can be reconstructed without relying on the collector's memory. All entries will be signed, dated and made with waterproof ink. Corrections to the logbook will be made by drawing one line through the error, initialing and dating. The logbook will always be stored in a secure location.

7.1.1) Chain-of-Custody Record and Request for Analysis Report

Chain-of-Custody records establish the documentation necessary to trace sample possession from the time of collection to analysis. A serialized Chain-of-Custody and Request for Analysis Report will be completed and will accompany each batch of samples. The record will contain the following information.

- Project name and number;
- Request for Analysis control number (for cross reference);
- Names of sampling team members;
- Laboratory destination;
- * Carrier/waybill number;
- Sample number;
- Sample location and description;
- Date and time collected;
- Sample type;
- Container type;
- * Special instructions;
- Possible sample hazards;
- Signatures of persons involved in the chain-of-possession.

When sample custody is transferred to another individual, the samples

must be relinquished by the present custodian and received by the new custodian. This will be recorded at the bottom of the Chain-of-Custody Record and Request for Analysis Report where the persons involved will sign, date and note the time of transfer. During field operations, each project geologist will act as the custodian for the samples he or she collects. Samples will not be left unattended unless placed, along with the Chain-of-Custody Record, in a secure container.

The Chain-of-Custody Record and Request for Analysis Report is a multipart form that allows the record to be kept in duplicate. One copy will accompany the sample shipment to the laboratory and one copy will be kept with the field logbook. All documents that accompany shipments will be enclosed in zip-lock bag and taped to the inside top cover of the shipping container.

Chain-of-Custody and Request for Analysis Reports provide official communication to the laboratory by listing the particular analysis required for each sample. This also furnishes further evidence that the Chain-of-Custody is complete. The form will contain the following information:

- Cross-reference to the Chain-of-Custody Record;
- Project name and number;
- * Sample number;
- Sample volume;
- Preservative as required;
- Requested testing program;
- Required turnaround time;
- Possible hazard identification;
- Sample disposal requirements;

The form will be signed and dated by the receiving laboratory sample management custodian.

7.1.2) Sample Identification

Sample labels prevent the misidentification of samples. Following sample collection, labels will be affixed to each sample container. Labels will record the following type of information.

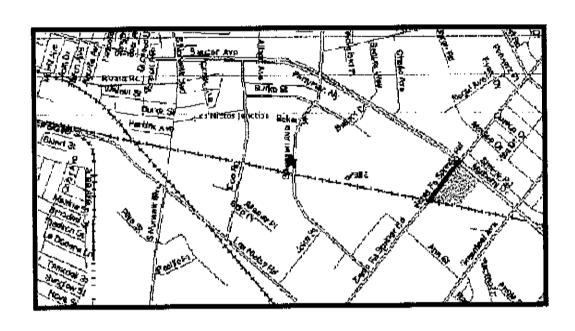
- Project name and number;
- Sample identification number;
- Name and sample collector;
- Date and time of collection;
- Analytical parameters;
- Known hazards;

Pertinent comments;

Labels will be sufficiently durable to remain legible even when wet.

8.0) HEALTH AND SAFETY PLAN

The purpose of the project Health and Safety Plan (HASP) is to provide guidelines and procedures to ensure the health and physical safety of people working at the former Angeles Chemical Company facility. The goal of the HASP is to provide precautionary and responsive measures for the protection of on-site personnel, the general public and the environmental. A HASP is included as **Appendix A**.



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Site Location

Angeles Chemical Company 8915 Sorensen Avenue Santa Fe Springs, CA Figure 1

Taken from SCS Report

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SCS WELL LOCATIONS

Angeles Chemical Company 8915 Sorensen Avenue Santa Fe Sorings, CA Figure 2

Wrightwood, CA

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BEII Soil Boring Locations

Angeles Chemical Company 8915 Sorensen Avenue Santa Fe Springs, CA FIGURE 5

Table 1 (cont.): Soil Vapor COC Results (ug/L)

<u>COCs</u> Benzene	<u>Depth</u> 8' bg	<u>\$V11</u> <1	<u>\$V12</u> <1	<u>SV13</u> <10	<u>\$V14</u> <1	<u>\$V15</u> <1	<u>SV16</u> <10	<u>SV17</u> <20	<u>\$V18</u> <100	<u>SV19</u> <10	<u>SV20</u> <10
	20' bg	<100	<100	<500	<500	<1,000	<1,000	<2,000	<200	<200	<200
1,1-DCA	8' bg	52	4.2	<10	2	9.9	<10	66	<100	<10	<10
	20' bg	520	780	<500	790	<1,000	<1,000	<2,000	520	1,500	1,100
1,1-DCE	8' bg	13	4.5	<10	3.2	27	45	150	<100	12	<10
	20' bg	3,700	3,800	1,600	4,800	6,000	7,200	4,500	1,100	1,500	1,100
cis 1,2-DCE	8' bg	70	20	11	4.9	16	<10	<20	<100	17	22
-	20' bg	3,700	15,000	3,600	3,100	<1,000	<1,000	<2,000	1,000	3,200	4,500
Ethylbenzene	8' bg	6.6	<1	<10	3.8	8.1	41	46	<100	29	18
	20' bg	<100	140	<500	900	<1,000	<1,000	<2,000	330	390	1,600
PCE	8' bg	36	1.3	<10	1.9	8.1	54	43	<100	13	13
	20' bg	<100	1,800	<500	2,000	<1,000	<1,000	<2,000	<200	200	3,100
1,1,1-TCA	8' bg	<1	6.6	<10	14	130	570	3,500	720	160	76
	20' bg	6,900	23,000	6,800	28,000	39,000	70,000	43,000	5,300	5,600	4,900
TCE	8' bg	5.2	4.4	<10	7.2	32	31	79	<100	<10	13
	20' bg	<100	630	1,300	2,600	1,200	2,700	<2,000	240	390	2,200
Toluene	8' bg	46	2.6	11	13	35	75	240	170	29	18
	20' bg	150	1,800	2,500	5,100	1,900	2,600	2,800	4,000	390	1,600
Xylenes	8' bg	24.9	1.8	12	13.7	31.6	164	191	<100	99	68
	20' bg	170	340	1,000	3,490	1,100	1,900	<2,000	250	1,340	5,800

Blue= Chemicals stored on-site.

Table 1: Soil Vapor COC Results (ug/L)

<u>COCs</u> Benzene	Depth 8' bg	<u>\$V1</u> <1	<u>SV2</u> <1	<u>\$V3</u> <1	<u>\$V4</u> <1	<u>SV5</u> <1	<u>\$V6</u> <1	<u>\$V7</u> <10	<u>\$V8</u> <10	<u>\$V9</u> <10	<u>\$V10</u>
D61 (2.01 10	20' bg	<20	<1	<20	13	<50	<100	<500	<500	<500	<10 <500
1,1-DCA	8' bg	2.8	3.3	<1	3.2	6.2	15	<10	34	13	16
	20' bg	120	4.7	270	1,700	2,000	6,600	8,700	9,200	5,200	1,000
1,1-DCE	8' bg	<1	<1	<1	<1	<1	5.1	<10	20	<10	19
	20' bg	35	1.3	75	190	220	830	1,300	2,100	4,800	3,900
cis 1,2-DCE	8' bg	2.9	3.2	3	7	5.5	27	13	25	31	87
•	20' bg	370	14	520	2,200	2,300	7,400	5,400	3,700	4,600	2,200
Ethylbenzene	8' bg	<1	<1	<1	<1	<1	8.4	<10	10	13	<10
	20' bg	<20	<1	<20	90	110	600	960	590	610	<500
PCE	8' bg	<1	1.2	2.4	<1	<1	6.9	<10	42	12	54
	20' bg	70	<1	<20	<10	<50	<100	<500	<500	<50 0	<500
1,1,1-TCA	8' bg	<1	<1	<20	3.1	<1	14	25	140	32	160
	20' bg	<20	<1	3.1	65	230	2,200	790	2,900	18,000	12,000
TCE	8* bg	<1	<1	<1	1.8	<1	1.3	<10	36	<10	<10
	20' bg	32	1.1	<20	15	<50	<100	<500	<500	<500	<500
Toluene	8' bg	<1	<1	<1	<1	<1	32	27	240	120	30
	20' bg	<20	<1	<20	400	1,000	5,300	2,600	12,000	2,800	<500
Xylenes	8' bg	<1	<1	<1	2.1	<1	27.8	24	30	60	11
-	20' bg	<20	2.2	<20	273	380	1,730	2,740	1,400	1,700	<500

Blue= Chemicals stored on-site.

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Table 1 (cont.): Soil Vapor COC Results (ug/L)

COCs Benzene	<u>Depth</u> 8' bg 20' bg	<u>SV31</u> <20 <200	<u>\$V32</u> <1 300	<u>SV33</u> <1 <100	SV34 <2 <200	<u>\$V35</u> <1 <200	<u>\$V36</u> <10 <500
1,1-DCA	8' bg	<20	10	7.9	20	26	27
	20' bg	<200	7,700	8,100	4,700	2,900	1,300
1,1-DCE	8' bg	<20	4.9	2.9	<2	2.9	13
	20' bg	<200	3,200	1,200	580	380	9,400
cis 1,2-DCE	8' bg	120	16	10	19	46	71
	20' bg	4 50	5,400	5,7 0 0	5,300	3,300	1,900
Ethylbenzene	8' bg	<20	8.8	13	4.8	15	18
	20' bg	<200	2,100	580	410	230	<500
PCE	8' bg	<20	2.2	9	<2	1.7	<10
	20' bg	<200	1,600	<100	<200	<200	850
1,1,1-TCA	8' bg	120	6.2	12	4.6	7	22
	20' bg	710	10,000	720	920	<200	90,000
TCE	8' bg	130	5.5	4.6	<2	1	<10
	20' bg	550	2,000	<100	<200	<200	2,700
Toluene	8' bg	260	45	73	13	55	72
	20' bg	950	33,000	1,600	2,700	280	1,300
Xylenes	8' bg	44	37.4	65	13.2	49	58
	20' bg	250	9,200	1,270	1,150	480	980

Blue= Chemicals stored on-site.

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Table 1 (cont.): Soil Vapor COC Results (ug/L)

COCs	<u>Depth</u>	<u>SV21</u>	<u>\$V22</u>	<u>SV23</u>	SV24	<u>\$V25</u>	SV26	<u>SV27</u>	SV28	<u>SV29</u>	<u>\$V30</u>
Benzene	8' bg	<10	<10	<10	<10	<10	<10	<1	<1	<1	<10
	20' bg	<1,000	<200	<200	<200	<250	<500	<500	<100	<100	<200
1,1-DCA	8' bg	<10	<10	63	<10	11	<10	2.2	2.5	4.7	110
	20' bg	<1,000	230	1,800	10,000	860	<500	<500	5,400	5,800	1,600
1,1-DCE	8' bg	<10	<10	10	<10	25	11	4.9	8.5	3.9	17
	20' bg	<1,000	<200	240	2,900	5,000	4,100	2,400	2,200	1,700	200
cis 1,2-DCE	8' bg	12	19	210	17	15	11	10	24	8.4	410
	20' bg	4,300	1,400	2,100	4,000	2,700	2,900	3,400	2,000	2,300	830
Ethylbenzene	8' bg	23	<10	14	<10	<10	<10	1.3	1,1	3.8	76
•	20' bg	<1,000	370	320	1,700	<250	<500	<500	300	630	520
PCE	8' bg	30	13	<10	<10	<10	<10	1	1.7	<1	<10
	20' bg	<1,000	<200	<200	<200	<250	<500	<500	<100	<100	<200
1,1,1-TCA	8' bg	27	<10	48	<10	<10	18	11	19	5.3	50
	20' bg	<1,000	<200	360	280	12,000	6,700	4,200	650	<100	240
TCE	8' bg	11	<10	<10	<10	<10	<10	<1	<1	<1	<10
	20' bg	<1,000	<200	<200	<200	<250	<500	<500	<100	<100	<200
Toluene	8' bg	200	75	38	24	50	20	8	6.8	7.9	690
	20' bg	8,800	400	3,500	12,000	<250	<500	<500	300	1,500	2,900
Xylenes	8' bg	83	33	122	12	29	12	5.3	4.6	13.1	308
•	20' bg	2,500	440	1,350	5,700	<250	<500	<500	740	2,100	1,990

Blue= Chemicals stored on-site.

Red= Transformation compounds from chemicals stored on-site.

Table 2: Groundwater COC Sample Results (ug/L)

COCs Benzene	<u>Date</u> Feb-94	<u>MW-1</u> 194	<u>MW-2</u> <100	<u>MW-3</u> 63	<u>MW-4</u> 111	<u>MW-6</u> 795	<u>MW-7</u> 46
	Nov-00	<2,500	61	73	NS-FP	NS-FP	65
1,1-DCA	Feb-94	649	1,130	85	1410	2,260	2,130
	Nov-00	17,000	1,800	800	N\$-FP	NS-FP	2,800
1,2-DCA	Feb-94	<100	<100	<50	<100	1140	31
	Nov-00	<2,500	<500	<500	NS-FP	N\$-FP	<500
1,1-DCE	Feb-94	2,210	2,460	2,800	806	1,240	151
	Nov-00	3,000	<500	2,900	NS-FP	NS-FP	350
cis 1,2-DCE	Feb-94	NA	NA	NA	NA	NA	NA
	Nov-00	20,000	9,500	5,700	NS-FP	NS-FP	210
trans 1,2-DCE	Feb-94	NA	NA	NA	NA	NA	NA
	Nov-00	<2,500	<500	<500	NS-FP	NS-FP	<500
Ethylbenzen e	Feb-94	333	1,720	115	1,180	1,910	45
	Nov-00	960	120	1,000	NS-FP	NS-FP	82
MEK	Feb-94	NA	NA	NA	NA	NA	NA
	Nov-00	3,100	<10,000	<10,000	NS-FP	N\$-FP	1,400
Methylene Chloride	Feb-94	1,220	2,980	6,530	4,760	21,400	<50
	Nov-00	1,100	180	5,600	NS-FP	NS-FP	180
PCE	Feb-94	662	2,150	5,370	3,320	2,130	134
	Nov-00	<2,500	<500	130	NS-FP	NS-FP	<500
1,1,1-TCA	Feb-94	9,370	3,470	444	36,200	114,000	90
	Nov-00	<2,500	<500	70	NS-FP	NS-FP	<500
TCE	Feb-94	7,160	3,040	1,730	14,300	1,320	45
	Nov-00	<2,500	<500	1,500	N\$-FP	N\$-FP	<500
Toluene	Feb-94	560	7,390	579	12,700	15,300	398
	Nov-00	4,000	57	3,700	NS-FP	NS-FP	800
Xylenes	Feb-94	2,192	7,790	1,014	4,362	4,710	186
	Nov-00	3,400	<500	2,500	NS-FP	NS-FP	247
DTW	Feb-94	30.05'	28.80	29,70	23.35	24.85	24.53
	Nov-00	35.62	35,28'	36.42	26.20	28.52'	28.19

DTW= Depth to Water.

NA= Not Analyzed.

NS-FP= Not Sampled Free Product present.

Blue= Chemicals stored on-site.

HEALTH & SAFETY PLAN

FORMER ANGELES CHEMICAL COMPANY 8915 SORENSEN AVENUE SANTA FE SPRINGS, CALIFORNIA

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FIGURES

Figure 1

Route to Hospital from Site

ATTACHMENTS

Attachment 1

Attachment 2

Field Team Review Forms

Tailgate Safety Meeting Form

1. HEALTH AND SAFETY PLAN

Blakely Environmental Investigations, Inc. (BEII), has established this site-specific Health and Safety Plan (HASP) as part of he work plan for all individuals engaged in field assessment activities at the former Angeles Chemical Company property located at 8915 Sorensen Avenue, Santa Fe Springs, CA. All site work shall be conducted in a safe manner and comply with EPA, state and local regulations, in particular OSHA 29 CFR, part 1910, and California Administrative Code Title 8. In addition, all site work will comply with BEII Corporate Health and Safety Program and all supporting Standard Operating Procedures. This HASP may be modified during actual field activities, if necessary, as more information and site-specific data is obtained.

Prior to any work on-site, an approved copy of this HASP (latest edition) shall be provided to all employees and subcontractors by the Project Manager. Each subcontractor will be responsible for providing their own HASP. At a minimum the subcontractors' HASP must meet the requirements of this HASP. BEII will review and approve each subcontractor HASP prior to initiation of field work.

1.1 PURPOSE AND OBJECTIVES

The purpose of this site-specific HASP is to provide guidelines and procedures to ensure the health and physical safety of those persons working at the former Angeles Chemical Company property. While it may be impossible to eliminate all risks associated with site work, the goal is to provide precautionary and responsive measures for the protection of on-site personnel, the general public and the environment.

The HASP objectives are as follows:

- * Ensure the safety of all site personnel
- * Protect the public and the environment
- * Adhere to BEII Health and Safety procedures

1.2 IMPLEMENTATION

This site-specific HASP, and any additions included in a subcontractor HASP, will be reviewed and the Field Team Review Form (Attachment 1) will be completed by all site personnel prior to their scheduled field work. Whenever the site-specific HASP is revised or amended, personnel will be instructed in the new procedures and required to complete a new Field Team Review Form. The site-specific HASP will be implemented in the field by BEIl's Health and Safety Coordinator and/or designated Site Safety Officer.

2.0 BACKGROUND

2.1 SITE LOCATION AND DESCRIPTION

The site is located at 8915 Sorensen Avenue in Santa Fe Springs. The site is an operating chemical packaging facility. Petroleum hydrocarbon impacted soil and groundwater were identified at the site.

2.2 SCOPE OF WORK

Perform additional lateral delineation of VOC impacted soil using eight Geoprobe borings.

3. RESPONSIBILITIES

3.1 HEALTH AND SAFETY COORDINATOR

As BEIT's Health and Safety Coordinator (HSC), Dave Blakely is responsible for directing and implementing the HASP and ensuring that all BEII and subcontractor personnel have been trained in HASP procedures. The HSC will coordinate safety activities with subcontractors and serve as liaison with public officials who might wish to monitor health and safety activities on-site. The HSC will also ensure that proper protective equipment is available and used in the correct manner, that decontamination activities are carried out correctly, that specific site hazards are noted and accounted for in the Work Plan and that employees have knowledge of the local emergency medical system. The HSC may conduct periodic site audits to ensure compliance with the HASP and to note any additional hazards or concerns. The HSC has stop-work authorization, which shall be executed upon determination that an imminent health or safety hazard exists.

3.2 DESIGNATED SITE SAFETY OFFICER

As BEII's Site Safety Officer (SSO), James Jazmin is responsible for implementing the site-specific HASP in the absence of the HSC. The SSO shall conduct daily tailgate safety meetings and ensure that only authorized personnel are allowed at the site. In addition, the SSO shall ensure that the daily sign-in logs for site persons and visitors are maintained. The SSO shall report any unsafe acts or conditions to the HSC.

The SSO also has stop-work authorization, which shall be executed upon determination that an imminent danger to life or health exists. If a stop-work order is issued, due to safety concerns, the HSC shall be contacted immediately and appropriate steps taken to correct the situation.

3.3 PROJECT MANAGER

BEII Project Manager, Hiram Garcia is the direct link between BEII and the former Angeles Chemical Company. He is responsible for directing all on-site operations, including the overall implementation of the Health and Safety Program. In addition, the Project Manager is responsible for ensuring that adequate resources and personnel protective equipment are allocated for the health and safety of site personnel. The Project Manager is also responsible for ensuring that the safety personnel (via the HSC) are given free access to all relevant site information that could impact health and safety. He will correct conditions or work practices that could lead to employee exposure to hazardous materials.

3.4 OCCUPATIONAL MEDICAL CONSULTANT

SAN BERNARDINO COMMUNITY HOSPITAL, BEII's Occupational Medical Consultant, will be available to answer medical questions and provide guidance in unexpected situations. The Medical Consultant will recommend appropriate medical monitoring for the site team members.

3.5 EMPLOYEES

All BEII employees working at the site are responsible for reading and understanding the HASP. They will be held accountable for complying with all aspects of the HASP.

3.6 SUBCONTRACTORS

If they desire, subcontractors on the site may provide their own site Health and Safety Plan that must incorporate, at a minimum, BEII's Health and Safety Plan. As described above, BEII's HSC and SSO have authority to ensure that subcontractor employees are following the BEII and subcontractor HASP provisions.

4. EMERGENCY PLANNING

4.1 EMERGENCY SERVICES

Figure 1 illustrates the location of the former Angeles Chemical Company property with respect to the Hospital. If an emergency should occur on-site, the Emergency Medical System (911) should be activated.

4.2 EMERGENCY TELEPHONE NUMBERS

Emergency telephone numbers shall be posted on-site and made immediately available at all times. These numbers shall include the following:

EMERGENCY:		
Fire		(562) 944-9713
Ambulance		911
Police		(562) 409-1850
Emergency Rooms	(see Figure 1 for Hospital Ro	outes)
Presbyterian Interco		(562) 945-8925
San Bernardino Con	nmunity Hospital	(909) 988-9211
DEH	(Dava Blakaly)	(760) 240 5408

BEII (Dave Blakely) (760) 249-5498 Greve Financial Services, Inc. (Joe Kennedy) (310) 753-5770

NON-EMERGENCY:

City Fire Department	(562) 944-9713
City Police Department	(562) 409-1850
U.S. Environmental Protection Agency	(202) 260-2090
Emergency Spill Response	911

5. HAZARD ASSESSMENT

This hazard assessment is based on available information concerning chemical hazards known or suspected to be present at the former Angeles Chemical Company property. The potential risks to site workers are evaluated below.

- 1. No danger exists from flammability or explosion since petroleum concentrations have been identified at less than 1% of the lower explosive limit of the most volatile constituent of the compound in the subsurface
- 2. No significant risk of inhalation of petroleum vapors exist due to the extremely low levels identified and the depth at which the concentrations were observed in the subsurface.

5.1 CHEMICAL EXPOSURE

Site workers may be exposed to the components of gasoline and chlorinated solvents during field activities, including drilling, sampling and treatment operations. Potential exposure is to petroleum hydrocarbon-contaminated soil and water. At present, the major expected site contaminants are 1,1,1 TCA, TCE, PCE, ethylbenzene, toluene and xylene. A description of some of these chemicals can be found in Table 1. The routes of exposure for hydrocarbons are ingestion, inhalation, skin absorption and eye or skin contact. Measures shall be taken to eliminate personnel exposure through the use of personal protection equipment when engineering controls are not feasible.

Table 1

Chemical Properties of Suspected Contaminants

Chemical <u>Name</u>	Chemical Formula CAS# Incompatibilities	<u>Description</u>	LEL UEL	(OSHA) (O	OSHA) (ACGIH)	(NIOSH) (NIOS	H) IDLH	Carcinogen
Benzene	C ₆ H ₆ 71432	Clear colorless liquid with aro- mp:5.51N F bp: 176N F Flash p: 12NF	1.3 7.1 1.4% 8.0%		0 ppM 1 ppM 10 min)	.1 ppM 1 ppM C. (8 hrs) (15 min)	A Yes	Strong oxidizers, chlorine,bromine
Toluene	C ₇ H ₈ 108883	Colorless liquid, benzoil like odor flammable mp: -95 to -94.5N, bp: 110.5N flash p: 40N Insol in H ₂ O	1.27% 7%	(10	00 ppM 100ppM 00 ppM 10 min. peak)	100 ppM 200 ppM (10 hr) (10 min)	2,000 ррМ	Strong oxidizers
Xylene	C ₈ H ₁₀ 1330207	Clear Liquid with aromatic colors. bp: 138.5N flash p: 81N F	1.1% 7%	100 ррМ		100 ррМ 200 ррМ	1,000 ррМ	Strong oxidizers
1,1,1 TCA	C ₂ H ₃ Cl ₃ 71-55-6	Colorless liquid, with a mild chloroform-like odor.	7.5% 12.5%	5 1,000 ррМ				Strong caustics, strong oxidizers

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	Table 1 (Continued)					
Chemical <u>Name</u>	Rates of Exposure	Symptoms	Target Organs	Recommended <u>Respirator Selection</u>		
Benzene	Inhalation Skin absorption Ingestion Skin/eye contact	Irritated eyes, nose respiratory system; giddy; headache; nausea; staggering gait; fatigue; anorexia; lassitude; dermatitis; bone marrow depressant; abdominal pain	Blood, CNS, skin, bone marrow, eyes, respiratory system	Pressure demand SCBA with full face piece at any detectable concentration		
Toluene	Inhalation Skin absorption Ingestion Skin/eye contact	Fatigue; weakness; confusion; euphoria; dizziness; headache; diluted pupils; lacrimation; nervousness; muscle fatigue; insomnia; paresthesia; dermatitis; photophobia	•	Full face chemical cartridge respirator with organic vapor cartridge up to 1,000 ppM.		
Xylene	Inhalation Skin absorption Ingestion	Dizziness; excitement; drowsiness; incoordination; staggering gait; irritated eyes, nose, throat; corneal vacuolization; anorexia; nausea; vomiting; abdominal pain; dermatitis	CNS, eyes, gastrointestinal tract, blood, liver, kidneys, skin	Full face chemical cartridge respirator with organic vapor cartridge up to 1,000 ppM		
1,1,1-TCA	Inhalation Skin absorption Ingestion Skin/eye contact	Headache, lassitude, CNS depression, poor equilibrium, irritation to eyes, dermititis, cardiac arrhythmias	Skin, CNS, cardiovascular system, eyes	Full face chemical cartridge respirator with organic vapor cartridge up to 1,000 ppM		

5.2 FIRE AND EXPLOSION

The risk of fire or explosion during site activities is present, though minimal. Toluene is considered flammable and is a known contaminant on-site. The lower explosive limits (LEL) for benzene, toluene and xylene are 1.3 to 1.4 percent, 1.2 percent and 1.1 percent, respectively. Their flash points are 12F, 40F and 81F, respectively.

For added security, smoking will not be allowed on the site except in a designated smoking area (to be determined). "No Smoking" signs will be prominently displayed at numerous locations. A portable combustible gas monitor may be utilized to monitor the LEL. All work will cease if the percent LEL reaches 20 percent.

5.3 OXYGEN DEFICIENCY

It is not expected that an oxygen-depleted atmosphere will be encountered during site activities. Whenever the risk of encountering an oxygen-depleted atmosphere does exist (confined space entry, for example), precautions will be taken to ensure the safety of all employees. Confined space entries are used only as a last resort, when all other means have been exhausted. BEII uses a special permit system for confined space entry, entailing additional employee training and atmospheric monitoring.

5.4 BIOLOGIC HAZARDS

It is not anticipated that poisonous plants or hazardous animals will be encountered during site activities.

5.5 SAFETY HAZARDS

Minimal safety hazards are expected onsite. All work will be performed during daylight hours and not within any structures located on-site to minimize the need for artificial illumination.

5.6 HEAT RELATED DISORDERS

Wearing personal protective equipment while conducting site operations puts the individual worker at considerable risk of developing heat-related disorders, collectively called heat stress. Heat emergencies fall into three categories: heat cramps, heat-exhaustion, and heatstroke (i.e., sunstroke). Without intervention and resolution of the problem, muscle cramps caused by loss of salt from heavy sweating can lead to heat-exhaustion (caused by dehydration) which can lead to heatstroke. Early symptoms include dizziness, fatigue, muscle cramps, nausea, profuse sweating, thirst, weakness, and lightheadedness. Later symptoms of heat-exhaustion include cool moist skin, dilated pupils, headache, pale skin, irrational behavior, nausea, vomitting, and unconsciousness. Symptoms of heatstroke are dry, hot, red skin, fever, dark urine, confusion, rapid slow breathing, rapid weak pulse, seizures, small pupils, unconsciousness. On-site personnel will stay hydrated. Mandatory water breaks will be taken every 30 minutes to avoid dehydration. Monitoring will be performed to avoid heat stress, using both oral temperatures and radial pulse rate for all workers engaging in heavy labor at ambient temperatures over 70° F.

5.7 NOISE

Excess exposure to noise above 85 decibels (dBa) is not anticipated during work at the former Angeles Chemical Company property, however, hearing protection will be mandatory. In general, excess noise is "suspected" when people standing next to each other are not audible to one another. A Hearing Conservation Program has been established by BEII and is in effect for all site locations.

5.8 ELECTRICAL HAZARDS

All electrical work, installation and wire capacities shall be in accordance with the provisions of the National

electric Code. Power cords will be UL-listed heavy duty and include a grounding plug. All power cords and receptacles shall be inspected before use to ensure that the casings are not cracked, grounding prongs are attached and that there are not other visible defects. If any defects are found, the cord, receptacle or equipment shall be tagged and placed out of use until repaired or disposed of. During equipment maintenance activities, proper lockout procedures will be utilized.

In addition, all equipment used on-site including drill rigs or remediation systems will be a minimum distance of ten-feet from overhead high voltage lines.

6. HEALTH AND SAFETY TRAINING

This section describes the health and safety training requirements necessary for participating in field operations at the former Angeles Chemical Company property.

6.1 TRAINING REQUIREMENTS

BEII employees and subcontractors who enter the site will be trained to be able to recognize and understand the potential hazards to health and safety associated with the site operations. All BEII employees potentially exposed to hazardous substances will have participated in 40 hours of health and safety instruction and actual field experience under the direct supervision of a trained, experienced supervisor. The objectives of the health and safety training are:

- * To make each team member aware of the potential hazards they may encounter;
- * To provide the knowledge and skills necessary to perform the work with minimal risk to worker health and safety;
- To make workers aware of the purpose and limitations of safety equipment;
- To ensure that workers can safely avoid or escape from emergency situations.

6.2 ADDITIONAL TRAINING REQUIREMENTS

Workers exposed to special hazards during field operations at the former Angeles Chemical Company property shall receive additional training as determined by the Project Health and Safety Coordinator. On-site managers and supervisors shall receive all training required for employees whom they supervise, plus eight additional hours of specialized training on management and supervision of such operations. Prior work experience or training will be acceptable provided that it is equivalent to the training requirements specified above. Whenever employees are working on-site, at least one person will be currently certified in Standard First Aid/CPR training.

6.3 DAILY SAFETY MEETINGS

Site-specific "tailgate" safety briefings will be conducted daily by the SSO or his designee to discuss the day's operations, review any modifications to the HASP and ensure that site personnel have the necessary information to conduct their jobs safely. The Tailgate Safety Meeting Form (Attachment 2) will be completed during this briefing and signed by all personnel in attendance. All completed forms shall be maintained on-site. Upon completion of the project, all forms shall be forwarded to the project Health and Safety files.

6.4 TRAINING PROGRAM CONTENT

BEII's Health and Safety Training Program involves instruction, self-study and field exercises in the following areas:

- Science of Hazardous Materials: Chemical and physical properties of hazardous materials.
- Toxicology: Dose response, routes of exposure, toxic effects and exposure limits.
- * Industrial Hygiene: Selection and use of proper protective equipment and clothing to ensure minimal contact with contamination, along with the proper methods to decontaminate non-disposable equipment.
- * Decontamination: The methods to don and doff protective equipment and clothing to ensure minimal contact with contamination, along with the proper methods, to decontaminate non-disposable equipment.
- Emergencies: Potential emergency situations, first aid, self-rescue techniques, emergency drills, Record keeping and investigation.
- * BEII Procedures: All aspects of the BEII Health and Safety Program for Hazardous Waste Site Operations, site-specific HASP, the Corrective Action Plan, and company standard operating procedures regarding these areas:
- Names of personnel and alternates responsible for site safety and health;
- Known or suspected health and safety hazards;
- Proper use of personal protective equipment;
- Work Practices to minimize risks;
- * Safe use of engineering controls and equipment;
- Medical surveillance requirements;
- Site control measures;
- Decontamination procedures,

7. MEDICAL SURVEILLANCE

7.1 GENERAL

A medical surveillance program has been instituted by BEII for all employees with potential exposure to hazardous substances. An initial medical examination is given upon initiation of employment, annually thereafter, and upon termination (if the employee has not had an examination within the last six months). In addition, baseline monitoring and job termination monitoring may be established to document exposure for project personnel. Subcontractors working with hazardous materials or in the site exclusion zones will be required to have their own company medical monitoring plan that meets BEII standards at a minimum.

7.2 EXAMINATIONS

Each team member must have a physical examination prior to working on-site to verify that he/she is physically able to use protective equipment (including respirators), work in hot or cold environments and have no predispositions to occupationally-induced disease. The medical program will also consist of periodic follow-up exams and additional exams as needed to evaluate specific exposures of unexplainable illnesses. The exams will be provided by the San Bernardino Community Hospital or an equally qualified alternate who is Board-certified in Occupational Medicine.

8. PERSONAL PROTECTIVE EQUIPMENT

This section details the level of personal protection to be used during field operations at the former Angeles Chemical Company property. Appropriate levels of protection have been determined for areas on-site through the information detailed in the site hazard assessment.

8.1 GENERAL

During all field operations, personnel shall wear hardhats, safety glasses, and steel toe safety boots. Any coveralls and work boots that are worn on-site should not be worn off-site.

8.2 LEVEL D OPERATIONS

Level D operations will include equipment operators and all site personnel except those working in areas which have been designated as posing a possible exposure hazard. Level D personnel will wear work coveralls and Nitrile gloves, and have in their possession an air purifying respirator (half or full-face) with organic vapor cartridges.

8.3 LEVEL C OPERATIONS

The use of Level C protection at the former Angeles Chemical Company property is not anticipated. Previous air monitoring on-site has identified no significant concentrations of benzene vapors with a photoiionization detector, which was identified in free product on groundwater at the site. Nevertheless, Level C protection shall be implemented in areas where task-specific air monitoring indicates that the action level of 1 ppm as benzene is reached. It is not anticipated that this level of air contamination will be present during remediation activities at the site. Level C protective clothing will consist of the general protective gear plus air purifying respirators with organic vapor cartridges. Dust filters may be worn over the respirators will be utilized by equipment operators while full-face respirators will be required of ground personnel. In addition, personnel will wear surgical inner gloves, Nitrile outer gloves, nuke booties and tyvek or saran-coated tyvek coveralls (depending on moisture or splash hazard).

An H-NU DL-101 photoionization detector (PID) will be used on-site to monitor the air quality. The PID will be calibrated with isobutylene for the detection of benzene. The action level for the use of air purifying respirators will be set at 1 ppm as benzene. The action level will be inputted into the PID in alarm mode. The PID will be within ten-feet of on-site personnel. The PID will continuously monitor the air quality and sound an alarm when action levels are exceeded. To further protect site workers from possible exposure, a rigorous cartridge exchange program will be enforced. Respirator cartridges will be changed daily. However, should the action level be exceeded for a two-hour period then cartridges will be changed out every four-hours. Organic vapor/acid gas cartridges will be used in all respirators. All personnel undergo annual respiratory protection training in January of each year.

8.4 LEVEL B OPERATIONS

The use of Level B protection at the former Angeles Chemical Company property is not anticipated. However, Level B protection shall be used when benzene air monitoring concentrations exceed 5 ppm. Level B shall consist of all personnel protective equipment described above in Level C operations with the substitution of a pressure demand SCBA with full face piece.

The above levels of protection will be utilized during initial field operations. Upon receiving data from air, soil and water sampling, these levels of protection will be re-evaluated to provide sufficient employee protection while maximizing productivity. A situation may be present in which Level C respiratory protection is utilized while Level D clothing is used. Criteria for downgrading personnel protective equipment during field activities will be laboratory results indicating no potential for exposure above the Threshold Limit Value (TLV) for any site contaminant,

9. SITE CONTROL

9.1 SITE SECURITY

No one will be allowed to enter a site work area unless they have been given permission to do so by the Project Manager and the Site Safety Officer, and otherwise follow applicable portions of this HASP.

9.2 DECONTAMINATION PROCEDURES

In order to assure that contamination is controlled and not spread from the site, decontamination procedures will be employed for both equipment and personnel. All decontamination activity will be monitored to assure compliance with the procedures described below.

Decontamination of personnel and equipment will be required following the monitoring activities. Decontamination procedures will be developed for both equipment and personnel. A distinction will be made between personnel equipment and monitoring equipment for purposes of decontamination.

9.2.1 STANDARD DECONTAMINATION

All field personnel exiting from the site must pass through a personnel contamination reduction corridor (CRC). At a minimum, all personnel exiting the site will remove all protective clothing and wash their face and hands before entering lunch and break areas to eat, drink or smoke. All personnel will perform a field wash (as defined below) before leaving the site.

A temporary CRC will be established by spreading a waterproof ground sheet and using several tubs for personnel decontamination. The area will be established by the SSO in discussion with the HSC and BEII Project Manager.

On-site showering will not be required as part of the routine decontamination procedure. However, a shower will be taken at the end of the working day after returning from the site to complete the decontamination process before the next meal or retiring for the day.

Disposal equipment, including respirator cartridges, must be placed in heavy plastic bags or directly into 55-gallon drums for off-site disposal in an approved manner. Used decontamination solutions will also be stored in 55-gallon drums.

9.2.2 EMERGENCY DECONTAMINATION

In the event that a seriously injured person is suspected of being contaminated, the SSO or other site worker will wrap the injured individual in clean plastic sheeting to prevent contamination of the ambulance. Less severely injured individuals will have their protective clothing carefully cut off before transport to the hospital.

9.2.3 COVERALLS

If coveralls are sent off-site for cleaning, the cleaner establishment will be notified of any hazards prior to receiving the coveralls.

9.3 WATER AVAILABILITY

Potable water will be available on-site. In addition, there are readily accessible toilet facilities on-site for personnel use.

9.4 RECORD KEEPING

To assure HASP implementation, many site activities will be documented. These include maintenance of the HASP at the site; employee HASP sign-off; daily safety briefings; site sign-in log; emergency medical data sheets; health and safety log-notes (which include instrument calibration records, sampling data, monitoring results and incident reports); chemical safety data sheets; and other records identified in the HASP. All documents noted are subject to audit and review by the Project Health and Safety Coordinator and/or Certified Industrial Hygienist.

9.5 EMERGENCY RESPONSE PLAN

Emergency response procedures have been developed for extraordinary events that could occur during field operations. These events include accidents and/or injuries, chemical exposure, spills and fires.

In general, the following actions shall be implemented in the event of an emergency:

- 1. First aid or other appropriate initial action will be administered by those closest to the accident/event. This assistance will be coordinated by the designated Site Safety Officer and will be conducted so that those rendering assistance are not placed in a situation of unacceptable risk. The primary concern is to avoid placing a greater number of personnel in jeopardy.
- The Project Manager, Field Supervisor and Health and Safety Coordinator will be notified immediately. They will in turn notify Greve Financial Services, Inc..
- 3. An Accident/Incident Report will be completed by the injured individual or witness and Site Supervisor. The Accident Report will then be forwarded to the Project Manager. Upon reviewing and commenting on the accident/incident, the form will be forwarded to the BEII Health and Safety Coordinator who in turn will investigate and make comments on the accident/incident. Any necessary changes to the operation will be made to prevent the same accident or near miss situation from occurring in the future.

9.5.1 ACCIDENTS AND INJURIES

The following response procedures should not be considered inflexible. Every accident presents a unique hazard that must be dealt with by trained personnel working in a calm, controlled manner. In the event of an accident/unusual event, the prime consideration is to provide the appropriate initial response to assist those in jeopardy without placing additional personnel at unnecessary risk.

9.5.1.1 ACCIDENT/INJURY IN CONTAMINATED AREA

If a person working in a contaminated area is physically injured, American Red Cross first aid procedures will be followed. Depending on the severity of the injury, emergency medical response may be sought. If the person can be moved, they will be taken to the edge of the site (on a stretcher, if needed) where contaminated clothing will be removed (if possible), emergency first aid administered and transportation to a local emergency medical facility awaited.

9.5.1.2 ACCIDENT/INJURY IN NON-CONTAMINATED AREA

For accidents/injuries in a non-contaminated hazardous area, the procedures above should be followed with the exception that the injured individual should not be moved and the removal of contaminated clothing would not be necessary.

9.5.2 CHEMICAL EXPOSURE

If the injury to the worker is chemical in nature (e.g., overexposure), the following first aid procedures are generally to be instituted as soon as possible.

9.5.2.1 EYE EXPOSURE

If contaminated solids or liquids get into the eyes, they will be washed immediately for 15 to 30 minutes at the emergency eyewash station using large amounts of water and lifting the lower and upper lids occasionally. Medical attention will be obtained immediately. (Use of contact lenses is not permitted in a designated Exclusion Zone).

9.5.2.2 SKIN EXPOSURE

If contaminated solid or liquid gets on the skin, the affected area will be promptly washed with soap or mild detergent and water. If contaminated solids or liquids penetrate through the clothing, clothing will be immediately removed and the skin washed with soap or mild detergent and water. Medical attention will be obtained if symptoms warrant.

9.5.2.3 INHALATION

If a person inhales a large volume of potentially toxic vapors, they will be moved to fresh air at once. If breathing has stopped, artificial respiration will be performed. The affected person will be kept warm and at rest. Medical attention will be obtained immediately.

9.5.2.4 INGESTION

If contaminated soil or liquid is swallowed, medical attention will be obtained immediately. Before first aid is given, the Poison control Center shall be called.

9.5.3 FIRES

Fire extinguisher will be available on-site in support areas and in all vehicles. Fire extinguisher will be 20 lb. ABC's rated. Personnel will be trained in the proper use of fire extinguisher, techniques for smothering fires and emergency evacuation procedures. All personnel will be instructed to summon the local Fire Department if a fire should occur.

9.5.3.1 SMALL FIRES

In the event of a small fire at the site, the following actions shall be taken:

- Evacuate all unnecessary personnel from the area;
- Attempt to extinguish fire using portable fire extinguisher or by smothering (personnel protective equipment may be required);
- Request emergency response assistance (ambulance, local Fire Department, hospital, poison control center) as appropriate for any injuries or exposures to hazardous chemicals which occur during suppression of the fire;
- Notify the BEII Project Manager and Health and Safety Coordinator;

Notify Greve Financial Services, Inc..

9.5.3.2 LARGE FIRES

In the event of a large fire, or small fire, which cannot be extinguished, the following actions shall be taken:

- Evacuate all personnel from the area, preferably to an upwind location;
- Notify the local Fire Department and other emergency response agencies;
- Notify the BEII Project Manager and Health and Safety Coordinator;
- 4. Notify Greve Financial Services, Inc.

9.6 EMERGENCY FOLLOW-UP AND EVALUATION

The BEII Field Supervisor will notify the Project Manager and Health and Safety Coordinator as soon as possible after an emergency situation has been stabilized. The Project Manager will then notify Greve Financial Services, Inc., appropriate agencies and environmental contacts. If an individual is injures, an Accident/Incident Report will be filed with the HSC.

9.7 PROCEDURES FOR REPORTING TO FEDERAL, STATE, AND LOCAL AGENCIES

In all cases, the BEII Project Manager will be notified. He, in turn, will contact the client and any regulatory agencies.

9.8 EMERGENCY EVACUATION PROCEDURES

In the event of a site emergency, all workers at the site will be notified by the SSO or designee to stop work immediately and offer assistance. Those not needed for immediate assistance will decontaminate per normal procedures and leave the site.

9.9 GENERAL SAFE WORK PRACTICES

9.9.1 MINIMIZATION OF CONTAMINATION

Personnel and equipment used in the contaminated area should be minimized, consistent with effective site operations. Only absolutely required samples will be taken back to the laboratory. Contamination will be avoided wherever possible by not kneeling on contaminated ground, avoiding puddles where possible and using plastic drop cloths and equipment covers.

9.9.2 SAMPLING PROCEDURES

Standard operating procedures will minimize the risk of personnel exposure to hazardous materials during sampling, packaging and shipping, and minimize the risk of exposure of others to spilled or residual waste materials.

9.9.3 SAFETY EQUIPMENT

First aid kits and fire extinguishers will be available on-site whenever work is being performed.

First aid kits will contain at a minimum the following equipment: large absorbent gauze, adhesive bandages, bandage compresses, gauze pads, eye dressing, scissors, tweezers, triangular bandages, antiseptic pads, first aid book, activated charcoal, syrup of ipecac, burn spray and roller badges. First aid kits will be portable.

9.9.4 FORBIDDEN ACTIVITIES

- Eating drinking, chewing gum or tobacco, smoking or any practice that increases the
 probability of hand-to-mouth transfer and ingestion of materials in any area designated as
 contaminated;
- b. Ignition of flammable liquids or starting open flames;
- c. Wearing contact lenses on-site;
- d. Use of non-prescription controlled substances or alcohol on-site;
- e. Site work at night.

Appropriate signs will be posted at the site.

Attachments

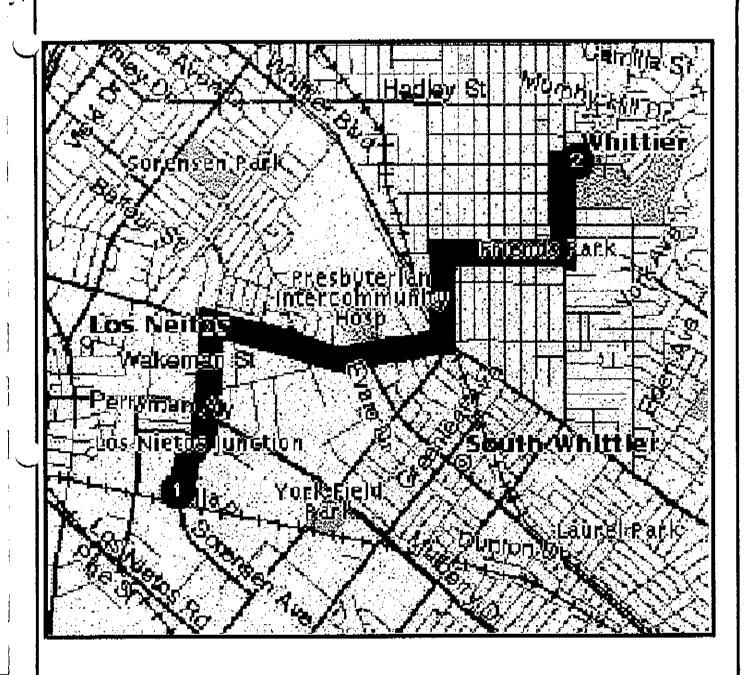
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Field Team Review and Emergency Data

I have read and reviewed the most recent revision					
of the Health and Safety	y Plan (HASP) for theProject				
 Site	. I understand the information contained therein and will				
comply with all aspects of	the HASP				
Name:					
Signature:	•				
Date:					
This information is in case	of emergency only:				
Social Security #:					
Person(s) to notify in case of Emergency:					
Relationship:					
	<u> </u>				
Name of Physician:	Phone #:				
Medical Coverage:					
Employee Date of Birth:	,				
*Known Medical Condition	ons:				

^{*}any known allergies or medical conditions that physicians should be made aware of before medical attention is given (i.e. allergic to penicillin).



Blakely Environmental
Investigations, Inc.
P.O. Box 339
Wrightwood, CA 92397
Wrightwood, CA 92397

Hospital Route
Angeles Chemical Company
8915 Sorensen Avenue
Santa Fe Springs, CA

Figure 1